

CLAIMS

We claim:

1. Fine dry particles formed by the method of forming fine dry particles, wherein the
5 particles comprise substances which are either soluble in supercritical fluid, near critical fluid, or mixtures thereof, or substances which are soluble or suspendable in aqueous solutions, which method comprises:
 - (a) forming a composition comprising one or more substances and a supercritical or near critical fluid;
 - 10 (b) reducing the pressure on said composition, whereby droplets are formed;
 - (c) passing said droplets through a flow of drying gas which is not the same substance as the supercritical or near critical fluid, said drying gas heated from above ambient temperature to about 100° C.
- 15 2. Particles of a pharmaceutically active substance that have at least 90% of the original pharmaceutical activity of the substance, having a diameter between about 0.1 to about 10 microns, a moisture content of between about 0.1% and 10%, and a bulk density of between about 0.1 and 1.5 g/cm³.
- 20 3. The particles of claim 2, wherein said particles also comprise one or more members selected from the group consisting of: excipients; stabilizers; bulking agents and surfactants at a concentration of between about 0.001% to about 75% measured by weight of the dry particles.
- 25 4. The particles of claim 2, wherein said particles are of a physiologically active composition selected from the group consisting of surfactants, insulin, amino acids, enzymes, analgesics, anti-cancer agents, antimicrobial agents, viruses, antiviral agents, antifungal pharmaceuticals, antibiotics, nucleotides, DNAs, antisense cDNAs, RNAs, peptides, proteins, immune suppressants, thrombolytics, anticoagulants, central nervous
30 system stimulants, decongestants, diuretic vasodialators, antipsychotics,

neurotransmitters, sedatives, hormones, anesthetics, anti-inflammatories, antioxidants, antihistamines, vitamins, minerals and other physiologically active materials known to the art.

5 5. Hollow particles having a diameter of about 0.1 to about 10 microns and a skin thickness about 1/10 to about 1/10,000 times the diameter.

10 6. The particles of claim 5, wherein said particles are of a physiologically active composition selected from the group consisting of surfactants, insulin, amino acids, enzymes, analgesics, anti-cancer agents, antimicrobial agents, viruses, antiviral agents, antifungal pharmaceuticals, antibiotics, nucleotides, DNAs, antisense cDNAs, RNAs, peptides, proteins, immune suppressants, thrombolytics, anticoagulants, central nervous system stimulants, decongestants, diuretic vasodialators, antipsychotics, neurotransmitters, sedatives, hormones, anesthetics, anti-inflammatories, antioxidants, antihistamines, vitamins, minerals and other physiologically active materials known to the art.

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